

## The Four Billion Year War

### Video Notes

**K-T Boundary Mass Extinction** (Cretaceous – Tertiary)- best theory is meteor hit the Earth causing dramatic climate changes, wiped out the dinosaurs

**Cenozoic Radiation** – followed the K-T Boundary Extinction – life forms that survived spread out to populate the habitats left empty

**DNA** – forms chromosomes, found in nucleus of cells, humans have 46 chromosomes (23 pairs), one of each pair from each parent, XX – female XY – male, Carries genetic information

**3.5 Billion years ago** – first photosynthesizing organisms , waste product was oxygen, built up in atmosphere

**Protective Ozone layer forms** – formed from oxygen given off , protected life from sun's ultraviolet radiation, allowed animal life to evolve

**First animals** – single celled organisms that ate plants.

**Evolved more complex** soft bodies where cells specialized

**550 million years ago** – Cambrian Explosion – life forms with complex bodies evolved at a rapid rate. First skeletons (exoskeletons) such as corals and shellfish

**First Vertebrates** – fish – better eyesight, better speed, developed toothed jaws, became the dominant predators of the oceans

**Animals** evolved to take advantage of the shoreline to avoid oceanic predators ex: horseshoe crabs lay their eggs on the shore

**Invertebrates** – first animals to move onto land

Centipedes and scorpions were among the first land dwellers

Simple lungs

**Fish** moved into the shallows using their fins to push through the plants. These fins evolved into legs

**370 million years ago-** Amphibians emerged onto land  
Simple lungs, moist skin absorbed oxygen

**320 million years ago-** some insects evolved wings and flew

**Wings-** allowed insects to spread out over the entire planet

**Reptiles-** tougher, waterproof skin- allowed them to move into drier areas.

Soft leathery shell on eggs allowed them to reproduce on dry land.

**Dinosaurs-** developed more upright walking, better stamina

**Mammals-** became dominant species after K-T Boundary Mass Extinction  
Evolved social living, higher intelligence

**Birds-** evolved from a type of warm-blooded dinosaurs

### **Quotes to think about:**

“The cast of life’s drama is never fixed and changes over time as the victorious survive.”

“DNA is the most important substance on Earth”

“Life is molded by the challenges it faces.”

### **Vocabulary:**

**Evolution**

**Radiation**

**Dispersal**

**Natural Selection**

**Survival of the fittest**

**Amphibian**

**Reptile**

**Bird**

**Dinosaur**

**Invertebrate**

**Vertebrate**

**DNA**

**Extinction**

**Photosynthesis**

**Mammal**

**Fish**

